

AMENDMENTS TO THE CLAIMS

The following is a complete listing of claims with a status identifier in parentheses. These claims supersede all previous listing of claims.

Listing Of Claims

1-10, 12-20. (Cancelled)

21. (New) A fuel bundle for a boiling water reactor, comprising:
 - a channel having four sides representing sides of the bundle and having an opening therein,
 - a pair of water passages located adjacent to a longitudinal centerline of the channel so as to extend centrally through the channel, the pair of water passages supported by one or more rod supports,
 - a plurality of fuel rods including full-length rods and part-length rods arranged as a plurality of concentric fuel-rod rings within the channel around the water passages, the part-length rods further comprising:
 - a first part-length rod group consisting of two short-length fuel rod subsets in a mirror-image, facing relationship to one another, each subset further consisting of three short-length fuel rods in a triangular orientation and directly adjacent to a given side of the pair of water passages so as to face the other subset on the other side of the water passage pair, and
 - a second part-length rod group consisting of four pairs of intermediate-length rods, each intermediate-length rod pair centrally located in an outermost ring of the bundle adjacent a corresponding one of the four sides of the channel.

22. (New) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C, the length of a given intermediate-length fuel rod is in a range of about 0.6C to 0.9C.
23. (New) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C, the length of a given intermediate-length fuel rod is about 0.66C.
24. (New) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C, the length of a given short-length fuel rod is in a range of about 0.1C to 0.4C.
26. (New) The fuel bundle of claim 21, wherein if the length of a given full-length fuel rod is C, the length of a given short-length fuel rod is about 0.33C.
27. (New) The fuel bundle of claim 21, wherein the fuel rods are configured as a 10X10 fuel-rod matrix within the channel.
28. (New) The fuel bundle of claim 21, wherein a plurality of voids are formed above upper ends of each of the short and intermediate-length rods to the top of the fuel bundle, the voids configured to trap neutrons for improving a shutdown margin for the boiling water reactor.
29. (New) A fuel bundle for a boiling water reactor, comprising:
 - a pair of centrally located water passages arranged within a 10X10 fuel-rod matrix bounded by four sides of a channel, the fuel rods including full-length, intermediate length and short-length fuel rods,
 - wherein the 10X10 fuel-rod matrix includes six short-rods consisting of two three-rod subsets in mirror image relationship with one another, the short-length rods in each subset configured in a triangular orientation and directly adjacent to the pair of water passages so as to face the other subset.

30. (New) The method of claim 29, wherein the 10X10 fuel-rod matrix includes eight intermediate-length rods arranged in four pairs, each intermediate-length rod pair centrally located on an outermost row or column of the matrix nearest a corresponding one of the channel sides.

31. (New) A fuel bundle for a boiling water reactor, comprising:

a pair of centrally located water passages arranged within a 9x9 fuel-rod matrix bounded by four sides of a channel, the fuel rods including full-length, intermediate length and short-length fuel rods,

wherein the 9X9 fuel-rod matrix consists of six short-rods arranged in two three-rod subsets in mirror image relationship with one another, the short-length rods in each subset configured in a triangular orientation and directly adjacent to the pair of water passages so as to face the other subset.

32. (New) The method of claim 31, wherein the 9x9 fuel-rod matrix includes six intermediate-length rods arranged as two intermediate-length rod pairs and two non-paired intermediate-length fuel rods, each of the two pairs and two non-paired rods located in a corresponding outermost row or column of the matrix adjacent a corresponding side of the channel.